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ABSTRACT

Issues involved in establishing and supporting distance education in developing countries are explored, focusing on the role of teleconferencing in support of distance learners. One of the distinctive features of an effective distance education system is the quality of its learner support services. The development of an efficient infrastructure through which support and face-to-face contacts can be provided is relatively expensive in financial terms and opportunity costs for the learner and the teacher. When cutbacks are needed, face-to-face contacts are usually the first to be reduced. The potential of teleconferencing for delivering this sort of support is apparent, but has not been fully tapped. In this respect, developing countries cannot afford to lag behind telecommunications advances. Some examples of effective teleconferencing use in Kenya, Namibia, Mauritius, the Solomon Islands, Guyana, and Brunei are given. (Contains 4 references.) (SLD)

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THE ROLE OF TELECONFERENCING IN SUPPORT OF DISTANCE EDUCATION: THE CASE FOR DEVELOPING COUNTRIES

By Professor Peter Kinyanjui
and Mrs. Augusta Morton

A paper presented at the 16th ICDE World Conference
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SUMMARY

It is generally agreed that student support is an important ingredient in any effective distance education system. It is also true that it can be costly in time and money and, when there are cutbacks, it is usually the student support services that get curtailed. It is the distance learners that suffer.

Are there alternative ways of providing face-to-face teaching and other support services on a systematic and continuing basis? What problems and opportunities face developing countries in their quest to establish efficient, modern and viable telecommunications infrastructure in support of their social and economic development? What does it take to establish an effective teleconferencing system? These are the main issues addressed in this paper.

The paper concludes that, given the importance of student support services, the potential of teleconferencing network has not been fully tapped in the development of distance education systems. In this venture, developing countries cannot afford to lag behind the telecommunications advancement. The potentials for appropriate technological leap-frogging have not been sufficiently tapped.

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INTRODUCTION

When the United Nations designated 1983 as World Telecommunications Year, it went almost unnoticed by many Third World countries. Part of the explanation for this apparent indifference is that, for many developing countries, telecommunications is associated with high technologies and heavy investment which are not readily available. Developing countries want to develop and catch up with, or at least reduce the gap between them and the industrially developed countries. But there are many problems and constraints that lie on the way. They include inadequate human, physical and fiscal resources, a lack of modern and viable telecommunications infrastructures, problem of technology transfer, national and international telecommunications regulations.

In their quest for appropriate media to use in education, developing countries should logically start with "little media" which, according to Schramm (1977), include radio, tape recorders, telephone, film strips, slide transparencies and other visual materials. These are less complex and less costly to install and maintain than the "big media" such as television, films and computers.

In this paper, we shall examine the various uses of telephone in distance education and more particularly the role of teleconferencing in support of distance learners, and make a case for its use in developing countries.

THE IMPORTANCE OF SUPPORT SERVICES IN A DISTANCE EDUCATION SYSTEM

One of the distinctive features of an effective distance education system is the quality of its learner support services. As far as possible, the distance learner should be assisted to overcome the obvious disadvantage of separation by time and distance from the teacher and from the fellow learners. However, the development of an efficient infrastructure through which this support and face-to-face contacts could be provided is relatively expensive, not only in financial terms but also in opportunity costs for both the teacher and the learner. In times of shortage necessitating cutbacks, it is the face-to-face contacts that are usually the first to be reduced. There is the need, therefore, to explore cheaper alternative means of providing regular contacts and support to distance learners while, at the same time, maintaining the quality of the services. From experiences gained around the world, it would seem that teleconferencing is a practical and viable alternative method of providing learner support services in a distance education system.

It would be useful, at this point, to specify what constitutes learner support services in distance education. First, there are the administrative functions which support learning at a distance, and they include information provision, admission, registration, records-keeping, bookstore and library services. Second, there are those services which provide support for the learning function, and they include advising, counselling, tutoring, assessing and evaluating, with the aim of developing an independent and self-reliant learner. The ideal situation combines both sets of functions.

WHAT IS A TELECONFERENCING SYSTEM?

Teleconferencing is an electronic means which can bring together people in two or more locations into a common network to discuss or share information which lasts only for the duration of the particular event. Audio teleconferencing makes use of regular telephone lines provided by local public telephone companies.

The basic installation for an audio-conferencing system consists of a reliable telephone system, a bridge to connect up the various units participating in the teleconferencing, a telephone receiver in the case of the single user, and speaker phones or microphones, in a multiple user system. Requirements for the audio graphics unit is the same as for the audio conferencing system but includes a computer receiver for the user and an electronic blackboard for the tutor. Audio

conferencing and audio graphics systems require the presence of all users at the same time. These two systems enable a tutor to deliver a course and conduct discussions and other activities with students at different locations at an agreed time, without moving from their locality. The audio graphics system allows graphics to be transmitted by means of an electronic blackboard to a computer at the same time.

This phenomenon offers the benefit of a face-to-face lecture in which travelling time to participate in or deliver a lecture is eliminated. It also allows distance learners the opportunity of social interaction with other students in a face-to-face situation.

A computer conferencing unit requires a telephone line and a computer receiver but does not require the immediate presence of the user. The computer receives and stores information for the user to access and send back at leisure.

The set-up for a video conferencing system requires the installation of satellite transmitters, computer and telephone receivers, through which information is distributed to a number of receivers.

REQUIREMENTS FOR AN EFFECTIVE TELECONFERENCING SYSTEM

In setting up a teleconferencing system, there are several requirements which should be considered as minimal for effective operation of the system. These are outlined below under five headings:

1. Resource Requirements and Support

Adequate resources should be provided to meet both the capital and recurrent expenditure necessary for establishing a teleconferencing system. Allocation of capital resources will be needed for specialist equipment and its installation and necessary provisions made for its security. Once installed, the equipment will need to be properly maintained and adequate resources will have to be provided to meet recurrent expenditure. Agreement will have to be reached about the transmission charges and who will be responsible for their payment. Provision must also be made for the wear and tear of the equipment, and, over time, for the replacement of the unserviceable equipment. Caution should be exercised to ensure the sustainability of the total facility once it has been established.

2. Technical Support

The quality of the technology and the accompanying technical support and maintenance is a key factor in determining the degree of success of a teleconferencing system. It therefore follows that the technicians who will be operating the system should be given adequate training. In certain instances, such training is available from the equipment suppliers and the telephone company engineering personnel. In addition, other support staff will need to be given appropriate orientation and training so that they understand how the teleconferencing system works from a non-specialised technical perspective.

More often than not, technical problems and hitches will occur in any teleconferencing system, and these have to be rectified immediately. The quality of voice will fluctuate, the bridging of lines may be slow or even confused, and at times, there may be dead silence between the speaker and the listeners. One constant frustration in using teleconference is the unpredictable nature of the technology itself, and things that can go wrong will go wrong. The important thing is how quickly the faults can be identified and rectified before the users lose their concentration. The

quality of the technology, therefore, is a key factor in determining the degree of success in any teleconferencing system.

3. Administrative Support

There is need for institutional recognition and support to be accorded to a teleconferencing system so that it draws the requisite cooperation from the various bodies involved. These would include government and parastatal institutions, public and private organisations as well as individuals. Active involvement of policy and decision makers, senior administrators and managers as well as teachers and student leaders should help to build a sense of partnership in the common venture. This makes it easier to share facilities and resources for the general improvement of teaching and learning through the new medium.

4. Training Support

It is generally acknowledged that introduction of any new technology should be accompanied by adequate training of all users starting at the earliest stages and continuing to the later stages of the new development. Training of staff and students constitutes a key element in the success of education delivered via a teleconferencing network. Teachers have to feel

comfortable in using teleconferencing system which is different from teaching through face-to-face, and have to learn to adapt to the new medium. In communicating with unseen students, the teacher has to adjust the format and content of the teaching materials as well as the pace of the delivery of the instruction. Systematic preparation and sequencing of events is necessary and calls for more time and more conscious planning and structuring of the events. The teacher must make best use of the medium by allowing for greater interaction with and among the students. All this calls for a systematic induction and training of all the users so that they can make best use of the medium.

5. Political Support and Commitment

A teleconferencing facility will make demands from national institutions, agencies and government organisations. It will be necessary to negotiate and agree on the rates to be charged by the national telecommunications organisation or the telephone company concerned with the provision and maintenance of the facility.

The introduction of teleconference technology calls for a corresponding improvement in communication infrastructures and efficiency in maintenance and repair services. Study centres will need to be established

at appropriate locations and the necessary equipment installed and maintained. Physical facilities may have to be shared with other institutions, and schedules will have to be agreed on the use of these facilities. It is therefore necessary that appropriate political support and commitment is sought at the early planning stages.

It is important that all participating institutions, agencies and organisations cooperate for mutual benefit, and when problems arise, they should be resolved as expediently as possible.

SOME EXAMPLES OF TELECONFERENCING PROJECTS

A number of countries have demonstrated, through pilot projects, the potential of teleconferencing as a viable educational medium, and the conditions under which it works best. Besides the technologically developed countries such as Canada, Australia, Britain, India and the United States of America which have set-up successful experiments in teleconferencing systems, there are a number of developing countries that are already establishing systems of their own with the assistance from international organisations.

The Commonwealth of Learning, for instance, has instituted a number of pilot projects on audio teleconferencing in selected countries with the intention of

demonstrating the effectiveness of these technologies for education and training. The following are some of the examples:

1. Kenya

Plans are complete for the introduction of an audio-graphics teleconferencing system that will link up the four public universities and three Extra-Mural Study Centres in the country. This system will improve the efficiency of course delivery and tuition in the Bachelor of Education external degree programme which presently uses a combination of correspondence materials, audio cassettes and face-to-face teaching sessions. These sessions are conducted on weekends by teams of itinerant lecturers from tertiary institutions and have proved to be very expensive in terms of time and money to both the institutions and the external students. It is expected that the development of an institutional capacity for teleconferencing will help resolve the problems and constraints currently being experienced in providing student support services in distance education in Kenya.

2. Namibia

A pilot project has been proposed to strengthen telecommunication links between the Namibian Distance Education College to be based in Windhoek, the capital city, and regional teacher resource centres spread across the country. The main applications of the teleconferencing facility will be to strengthen the administrative communication, to facilitate the coordination of distance education activities and support field staff, to provide tutorial assistance to distance learners and to provide instruction for seminars and workshops on a regular basis. If these applications proved beneficial, additional resource centres and teachers colleges would be linked up to the network.

3. Mauritius

Mauritius has over the years garnered considerable experience in the application of technologies to support distance education programmes. In addition, COL has provided assistance to the University of Mauritius in establishing a division of extension studies and facilitated links with Laurentian University in Canada. A teleconferencing network is in the process of installation and this will link up the central campus of the

University to four centres in other parts of the island, and later to neighbouring Rodrigues.

4. Solomon Islands

Since 1974, the University of the South Pacific has been making use of a satellite to provide teleconferencing links between the main campus in Suva, Fiji, and the regional centres spread across the seas. The proposed Solomon Islands project aims first, to extend the University of the South Pacific Extension Services courses beyond the capital, Honiara, to the Provincial centres, and second, to improve the delivery of the courses offered by the College of Higher Education (SICHE) to the same centres. The equipment has been installed in the appropriate locations, but difficulties have been experienced in maintaining the teleconferencing bridge equipment and these are being resolved by Solomon Islands Telekom.

5. Guyana

A project involving the University of Guyana's Institute of Adult and Continuing Education and three distance learning centres was begun in 1990 for the main purpose of upgrading students attempting the

University's entrance examinations. At present two sites are connected by audio teleconferencing facilities, and additional sites will be connected shortly.

6. Brunei

Plans are underway to establish an audio teleconferencing facility at The Commonwealth of Learning's Brunei Distance Education Centre. This will supplement the video conference facilities already in place.

PROMISE FOR THE FUTURE

It is expected that these pilot projects will demonstrate the conditions under which teleconferencing systems work best and that they will serve as "models" on which similar projects might be replicated in other parts of the world. Developing countries cannot afford **not** to experiment with new media and technologies.

By borrowing from the experiences of industrially developed countries, developing countries will be able to tap the potential of telecommunications technologies and apply them in modified forms to suit their own needs and circumstances. In terms of increasing access and sharing of limited resources through the application of

these technologies, we would wish to reiterate the words of James W. Hall's address to the 13th World Conference of ICDE:

> **"Telecommunications holds the promise not only to fulfil the older notions of university extension and outreach, but also to bring to the distance student that quality of education associated with traditional campus instruction at its best. Such quality will be possible because, for the first time, the faculty and resources of the university can be made available practically to the off-campus student."**

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